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# Abstracts

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Laura Martini and Kim Plofker, *Assistant Editors*

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The initials in parentheses at the end of an entry indicate the abstractor. In this issue there are abstracts by Francine Abeles (Union, NJ), Ivor Grattan-Guinness (Middlesex), Duncan Melville (Canton, NY), David Orenstein (Toronto), Laura Martini, Kim Plofker, and Sloan Evans Despeaux.

## General

Bérczi, Szaniszló. The role of Curie principle in understanding composite plane symmetry patterns: New ethnomathematic relations in ancient Eurasian ornamental arts from archaeologic finds of the period 1 M.B.C. and 1 M.A.D., *Forma* **19** (3) (2004), 265–277. Examines symmetry patterns in architecture and archaeological relics in order to understand the cultural dynamics of Eurasian migration from the first millenium B.C.E. to the first millenium C.E. See the review by Ubiratan D'Ambrosio in *Zentralblatt MATH* 1105.01003. (PWH) #34.4.1

Breidert, Wolfgang. Zur Effizienz der Mathematikgeschichte, in #34.4.10, pp. 220–238. #34.4.2

Cheong, Kye-Seop. *See* #34.4.3 and #34.4.4.

Desclés, Jean-Pierre; and Cheong, Kye-Seop. Analyse critique de la notion de variable (points de vue sémiotique et formel) [Critical analysis of the notion of variable (semiotic and formal viewpoints)], *Mathématiques et Sciences Humaines* [*Mathematics and Social Sciences*] **173** (2006), 43–102. The first of a two-part series devoted to an analysis of the concept of "variable;" this part includes a historical review of the concept's use in mathematics, especially logic and algebra. (SED) #34.4.3

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Desclés, Jean-Pierre; and Cheong, Kye-Seop. Analyse critique de la notion de variable (points de vue sémiotique et formel), II [Critical analysis of the notion of variable (semiotic and formal viewpoints), II], *Mathématiques et Sciences Humaines* [*Mathematics and Social Sciences*] **174** (2006), 69–99. The second of this two-part series aims "to highlight the meaning of 'variable' in different fields of mathematics: the expression of equations in algebra with indeterminate entities; the analytical expression of functions in analysis; the expression of quantification in logic." A historical survey of this concept from Viéte and Descartes to Frege and other twentieth-century logicians is included. (KP) #34.4.4

Gebhardt, Rainer. Erste Vermutungen über die Nutzung zweier historischer Rechengeräte, in #34.4.10, pp. 84–97. #34.4.5

Gerstengarbe, Sybille. *See* #34.4.30.

Gick, Ute. Unterrichtsprojekt "Irrationale Zahlen," in #34.4.10, pp. 523–533. #34.4.6

Gindikin, Simon. *Tales of Mathematicians and Physicists*, translated by Alan Shuchat, 2nd ed., New York: Springer, 2007, xx+382 pp., paperback. An expanded version of the 1988 English edition and based on articles appearing in the Soviet journal *Quantum* (*Kvant*). In *Zentralblatt MATH* 1105.01009, Franz Lemmermeyer writes that the book "presents selected episodes from the lives and works of some mathematicians and physicists: Tartaglia and Cardano, Galilei, Huygens, Pascal, Euler, Lagrange, Laplace, Gauss, Klein, Poincaré, Ramanujan, and Penrose." (PWH) #34.4.7

Giusti, Enrico. *Piccola storia del calcolo infinitesimale dall' antichitá al novecento* [*A Short Story of Infinitesimal Calculus from Ancient Times to the 20th Century*], Pisa: Istituti Editoriali e Poligrafici Internazionali, 2007, 98 pp. This book presents a survey of the development of infinitesimal calculus from ancient times to the 20th century. See the review by Eberhard Knobloch in *Zentralblatt MATH* 1108.01002. (LM) #34.4.8

Gnedenko, B.V. *Outlines on the History of Mathematics in Russia* [in Russian], second edition, Moscow: URSS, 2005, ii+292 pp. Surveys the development of mathematics in Russia from the Middle Ages to the 1940s. The new edition "includes commentaries on the results obtained by mathematical historians over the last 60 years." (KP) #34.4.9

Hein, Wolfgang; and Ullrich, Peter, eds. *Mathematik im Fluss der Zeit* [*Mathematics in the Flow of Time*], Augsburg: ERV Dr. Erwin Rauner Verlag, 2004, paperback, 566 pp. This volume contains the proceedings of the meeting on the history of mathematics held in Attendorn/Neu-Listernohl, Germany on 28 May through 1 June 2003. See the review by W. Kaunzner in *Zentralblatt MATH* 1051.01002. The papers are listed here separately as #34.4.2; #34.4.5; #34.4.6; #34.4.12; #34.4.16; #34.4.20; #34.4.23; #34.4.25; #34.4.29; #34.4.31; #34.4.46; #34.4.50; #34.4.54; #34.4.58; #34.4.59; #34.4.62; #34.4.73; #34.4.74; #34.4.83; #34.4.86; #34.4.97; #34.4.98; #34.4.101; #34.4.120; #34.4.123; #34.4.124; #34.4.125; #34.4.126; #34.4.133; #34.4.138; #34.4.145; #34.4.156; #34.4.174; #34.4.182; #34.4.187; #34.4.207; and #34.4.210. (SED) #34.4.10

Khan, Liyaquat. Mathematics and actuarial science—past, present and the future, *Gaṇita-Bhāratī* **24** (2002), 122–133. An essay on the history and present state of actuarial science, which focuses on England and India. See the review by O.B. Cheinine in *Zentralblatt MATH* 1108.01318. (SED) #34.4.11

Krischer, Tilman. Die klassische Tradition und die neuzeitliche Wissenschaft, in #34.4.10, pp. 119–131. #34.4.12

Kühn, Heidi; and Poggendorff, Johann Christian. *Biographisch-literarisches Handwörterbuch der exakten Naturwissenschaften. Ergänzungsband Mathematik*, 3 parts, Weinheim: Wiley–VCH Verlag, 2004. One of the supplements of this great bibliographical project, which ended with the completion of volume 8. The first two parts give bibliographies of mathematicians who were not (fully) covered in earlier volumes; the last one lists all the mathematical journals and books that were cited in the edition. (IGG) #34.4.13

Kunkel, Paul. The tangency problem of Apollonius: Three looks, *British Society for the History of Mathematics Bulletin* **22** (1) (2007), 34–46. Considers solutions to the problem by François Viète, Isaac Newton, and Joseph-Diaz Gergonne. (PWH) #34.4.14

Kvasz, Ladislav. The history of algebra and the development of the form of its language, *Philosophia Mathematica. Series III* **14** (3) (2006), 287–317. The author employs an approach used in his earlier analysis of the development

of geometry to construct a similar analysis of the development of algebra, which is considered to have begun with the work of al-Khwārizmī. Its development is divided into six stages marked by different "forms of the language of algebra," which correspond to different concepts of solving an equation: e.g., finding a procedural rule, finding a symbolic formula, finding a factorization, etc. (KP) #34.4.15

Lagemann, Matthias. Eine interdisziplinäre Reihe zur Bruchrechnung / Akustik / Harmonielehre, in #34.4.10, pp. 498–513. #34.4.16

Leitão, Henrique. The practice of mathematics in Portugal: Problems and methods, in #34.4.28, pp. 1–33. #34.4.17

Leitão, Henrique. *See also* #34.4.28.

McCartin, Brian J. *e*: The master of all, *Mathematical Intelligencer* **28** (2) (2006), 10–21. A remarkable cornucopia of little-known facts involving *e*, including material published in the past ten years, two of these being from the *Mathematical Intelligencer* (M. Brede's piece in **27** (2005), 6–7, and H.J. Brothers and J.A. Knox's article in **20** (1998), 25–29). The author extends a wide set of known *e*-connections, e.g. Stirling, transcendental, prime, logarithmic, spiral, and Bernoulli numbers, as well as exponential fitting and the Bernoulli function, Prony's method, statistical distributions, and many others. An extensive bibliography is appended. (FA) #34.4.18

McElroy, Tucker. *A to Z of mathematicians*, New York, NY: Facts On File, Inc., 2005, xii+308 pp. The author presents short biographies of 150 mathematicians born before the 20th century (with the exception of Kurt Gödel). See the review by Karin Reich in *Zentralblatt MATH* 1107.01008. (LM) #34.4.19

Moretto, Antonio. Mathematische Modelle in der Philosophie der Neuzeit, in #34.4.10, pp. 239–255. #34.4.20

Müller, Uwe. Die naturwissenschaftlichen, mathematischen, technischen und medizinischen Handschriften in der Bausch-Bibliothek [The scientific, mathematical, technical, and medical manuscripts of the Bausch library], in #34.4.30, pp. 131–145. A description of the scientific, mathematical, technical and medical manuscripts of the library founded by Leonhard Bausch (1574–1636). See the review by Rainer Beedgen in *Zentralblatt MATH* 1107.01012. (SED) #34.4.21

Nahin, Paul J. *An Imaginary Tale: The Story of* $\sqrt{-1}$, Princeton: University Press, 2007, xxiv+267 pp. A second edition of the 1998 popularization (abstracted here as #26.2.107) of the mathematics of the complex numbers. Along with corrections and a new preface, this edition contains three new appendices giving some mathematical details. See the review by Siegfried J. Gottwald in *Zentralblatt MATH* 1106.01002. For a review of the 1st edition, see *Zentralblatt MATH* 0913.01004. (PWH) #34.4.22

Parthier, Benno. *See* #34.4.30.

Peters, Katja. Mathematikgeschichte hautnah erfahren – oder: Wie Quellenlektüre für Mathematik begeistern kann, in #34.4.10, pp. 534–565. #34.4.23

Pier, Jean-Paul. *Mathématiques entre savoir et connaissance* [*The Degrees of Mathematical Knowledge*], Paris: Vuibert, 2006, viii+211 pp. The author uses aspects of the history and philosophy of mathematics to explore how mathematics transcends "savoir" or knowing to attain "connaissance" or comprehensive understanding. (KP) #34.4.24

Poggendorff, Johann Christian. *See* #34.4.13.

Reich, Ulrich. Vom Pluszeichen bis zum Gleichheitszeichen: Neuere Erkentnisse über die Entstehung unserer gebräuchlichsten Zeichen, in #34.4.10, pp. 71–83. #34.4.25

Remane, Horst. *See* #34.4.30.

Rodrigues, José Francisco. Portuguese mathematical journals: Some aspects of (almost) periodical research publications, in #34.4.28, pp. 601–627. #34.4.26

Saraiva, Luís M.R. Historiography of mathematics in Portugal, in #34.4.28, pp. 35–61. #34.4.27

Saraiva, Luís M.R.; and Leitão, Henrique. *The Practice of Mathematics in Portugal*, Coimbra: Imprensa da Universidade de Coimbra, 2004, xiv+758 pp. This volume contains articles from an international meeting held 16–18

November 2000 in Óbidos. Besides three appendices, the volume contains papers that are listed here separately as #34.4.26; #34.4.27; #34.4.61; #34.4.63; #34.4.64; #34.4.65; #34.4.66; #34.4.67; #34.4.70; #34.4.72; #34.4.75; #34.4.90; #34.4.93; #34.4.94; and #34.4.185. (SED) #34.4.28

Schönwald, Hans G. Geschichte(n) über negative Zahlen, in #34.4.10, pp. 514–522. #34.4.29

Shuchat, Alan. *See* #34.4.7.

Splinter, Susan; Gerstengarbe, Sybille; Remane, Horst; and Parthier, Benno, eds. *Physica et historia. Festschrift for Andreas Kleinert on the Occasion of his 65th Birthday*, Halle/Saale: Deutsche Akademie der Naturforscher Leopoldina, 2005, 528 pp. Three of the articles in this collection are abstracted here separately as #34.4.21; #34.4.39; and #34.4.77 (two others were abstracted here earlier as #34.3.63 and #34.3.76). (LM) #34.4.30

Ullrich, Peter. *See* #34.4.10.

Wieslaw, Witold. How much wine can be in a barrel?, in #34.4.10, pp. 143–153. Discusses volume problems from ancient Mesopotamia, Egypt, during the Renaissance and the 18th century. (SED) #34.4.31

## India

Chand, Ramesh. Importance of place value system in algebra, *Gaṇita-Bhāratī* **25** (1–4) (2003), 131–137. From the review of S.L. Singh in *Zentralblatt MATH* 1106.01005: "It is well-known that $325 = 3 \times 10^2 + 2 \times 10 + 5$. Using this idea of writing numbers, the author computes $62^2$, $629^3$ etc." (PWH) #34.4.32

Das Gupta, S. The origin of the word algebra, *Gaṇita-Bhāratī* **24** (1–4) (2002), 1–5. S.L. Singh in *Zentralblatt MATH* 1106.01006 writes that this article presents evidence that "the word *algebra* has been derived from the Sanskrit word *kuttaka* and not from the Arabic word *al-begr* or its variant *al-jabr*." (PWH) #34.4.33

Delire, Jean Michel. Quelques aspects arithmétiques des commentaires de Veṅkateśvara et de Dvārakanātha à la géométrie du *Baudhayana Śulbasūtra* [Some arithmetical aspects of the commentaries of Veṅkateśvara and Dvārakanātha on geometry in the *Baudhayana Śulbasūtra*], *Oriens Occidens* **4** (2002), 59–79. Investigates the arithmetical features of two medieval Indian commentaries on the ancient Sanskrit ritual geometry manual *Baudhayana Śulbasūtra*. (KP) #34.4.34

Jain, Anupam. Prominent Jaina mathematicians and their works, *Gaṇita-Bhāratī* **24** (1–4) (2002), 19–24. S.L. Singh in *Zentralblatt MATH* 1106.01007 describes this list of "32 ancient and medieval scholars of Jaina Sect whose works could be of mathematical interest." (PWH) #34.4.35

Jha, Parmeshwar. Mathematics in the tribal belt of Bihar, *Gaṇita-Bhāratī* **24** (1–4) (2002), 14–18. Suggests that barter system in use among people of Jharakhand provides evidence of their knowledge of arithmetic. See the review by S.L. Singh in *Zentralblatt MATH* 1106.01304. (PWH) #34.4.36

Lal, R.S.; and Prasad, Ramashis. Contribution of Narayana Pandita to the solution of the equations of the type $NX^2 \pm 1 = Y^2$, *Gaṇita-Bhāratī* **24** (1–4) (2002), 117–121. This paper discusses Narayana Pandita's work (1350 CE) on the solution of the equation written in modern terminology as $Nx^2 \pm c = y^2$. (LM) #34.4.37

Malhotra, V.K. Some historical aspects of Indian official statistical system, *Gaṇita-Bhāratī* **24** (1–4) (2002), 134–140. The author presents a history of statistics in India. See the review by O.B. Cheinine in *Zentralblatt MATH* 1108.01301. (LM) #34.4.38

Prasad, Ramashis. *See* #34.4.37.

*See also*: #34.4.40

## China

Dauben, Joseph W. Three multi-tasking problems in the *Suan Shu Shu*, the oldest yet-known mathematical work from Ancient China, in #34.4.30, pp. 25–34. The author presents three multi-tasking problems found in the *Suan Shu Shu*, providing a full translation of each problem and a working out of their solutions. See the review by J.-C. Martzloff in *Zentralblatt MATH* 1109.01005. (LM) #34.4.39

Du, Ruizhi; and Liu, Lin. Historical comparison of applications of negative numbers in China, India and Arabia [in Chinese], *Journal of Liaoning Normal University* **27** (3) (2004), 274–278. The authors discuss current knowledge on the history of negative numbers in China, India and Islamic countries on the basis of Chinese and Russian studies. See the review by J.-C. Martzloff in *Zentralblatt MATH* 1109.01006. (LM) #34.4.40

Liu, Lin. *See* #34.4.40.

Shen, Wenji. New usage of Yang Hui's rhymed formula, *Journal of Ningxia University* **25** (1) (2004), 17–19. The author shows how Yang Hui's rhymed formula can be used to understand the construction of complex magic squares of order 5 and 9. See the review by J.-C. Martzloff in *Zentralblatt MATH* 1109.01007. (LM) #34.4.41

Wang, You Jun. *Jueyi Shuxue*: The earliest probability book in Chinese with Laplacian probability style [in Chinese], *Studies in the History of Natural Sciences* **25** (2) (2006), 159–169. *Jueyi Shuxue*, the first Chinese work on probability theory, was translated in 1880 from an English treatise co-authored by a Chinese mathematician and a British missionary. The author argues that the source of their work must have been an 1859 *Encyclopedia Britannica* article on probability by Thomas Galloway, and investigates in detail the influence of this article (particularly its Laplacian viewpoint) on the content of *Jueyi Shuxue*. (KP) #34.4.42

*See also*: #34.4.172.

## Islamic/Islamicate

McGinnis, Jon. A penetrating question in the history of ideas: Space, dimensionality and interpenetration in the thought of Avicenna, *Arabic Sciences and Philosophy* **16** (1) (2006), 47–69. Analysis of Avicenna's philosophy of space and matter and connections with his philosophy of mathematics. See the review by Ubiratan D'Ambrosio in *Mathematical Reviews* 2225903 (**2007h**:01001). (DJM) #34.4.43

*See also*: #34.4.40

## Antiquity

Acerbi, Fabio. A reference to perfect numbers in Plato's *Theaetetus*, *Archive for History of Exact Sciences* **59** (4) (2005), 319–348. The author suggests that a remark of Socrates viewing six as "three and two and one" implies an interest of Plato in perfect numbers. An investigation of the evidence is inconclusive. See the review by Klaus Barner in *Mathematical Reviews* 2188937 (**2007g**:01003). (DJM) #34.4.44

Beech, Martin. The Antikythera mechanism, *The Journal of the Royal Astronomical Society of Canada* **101** (3) (2007), 93–95. Beech surveys the print and electronic literature that describes and proposes uses for the Antikythera mechanism (Greek c. 100 BCE). Despite a high level of scientific and technical sophistication (at least 30 gears for luni-solar cycles), with a possible attribution to Hipparchus, Beech concludes it was an exhibition device for a rich patron, not a practicing astronomer/astrologer. (DO) #34.4.45

Boehme, Harald. Zur Entstehung der so genannten geometrischen Algebra, in #34.4.10, pp. 1–15. #34.4.46

Borzacchini, Luigi. Why rob Archimedes of his lemma? *Mediterranean Journal of Mathematics* **3** (3–4) (2006), 433–448. The author re-evaluates the role of Archimedes in the historical development of the "method of exhaustion" now more commonly assigned to Eudoxus, "underlining the theoretical relevance of the problem of addition/subtraction and comparison between curves." (KP) #34.4.47

Christianidis, Jean. The way of Diophantus: Some clarifications on Diophantus' method of solution, *Historia Mathematica* **34** (3) (2007), 289–305. This paper discusses the program for solving arithmetical problems that Diophantus referred to in the introduction of the *Arithmetica*. (SED) #34.4.48

Christianidis, Jean. *See also* #34.4.49.

Fournarakis, Philippos; and Christianidis, Jean. Greek geometrical analysis: A new interpretation through the "givens"-terminology. *Bolletino di Storia delle Scienze Matematiche* **26** (1) (2006), 33–56. The authors argue that differences in Greek terminology for "givens" reflect necessity of the given. See the review by Jan P. Hogendijk in *Mathematical Reviews* 2243601 (**2007g**:01004). (DJM) #34.4.49

Kohl, Klaus. Die Erdmessung des Eratosthenes, in #34.4.10, pp. 16–25. #34.4.50

Rendall, Stephen. *See* #34.4.51.

Riedweg, Christoph. *Pythagoras. His Life, Teaching, and Influence*. Translation by Stephen Rendall. Ithaca: Cornell University Press, 2005, xiv+184 pp. Riedweg, a student of Burkert, summarizes what is known about Pythagoras. See the review by Glen Van Brummelen in *Mathematical Reviews* 2254835 (**2007g**:01005). (DJM) #34.4.51

Vinel, Nicolas. Un carré magique pythagoricien? Jamblique précurseur des témoins arabo-byzantins [A Pythagorean magic square? Iamblichus of Chalcis as a precursor to the Arabo-Byzantine commentators], *Archive for History of Exact Sciences* **59** (6) (2005), 545–562. A passage on Pythagorean arithmetic by the fourth-century Neoplatonic philosopher Iamblichus is considered in connection with the arithmetic of magic squares, and explores possible links between this work and the study of magic squares in China, India and the Arab world. (KP) #34.4.52

## Middle Ages

Bellhouse, D.R. *De vetula*: A medieval manuscript containing probability calculations, *International Statistical Review* **68** (2) (2000), 123–136. This paper discusses the probability calculations in *De vetula*, a poem written in mid-thirteenth century. It also includes a translation of a relevant section of the poem. (LM) #34.4.53

Gropp, Harald. Severus Sebokht und Gerbert d'Aurillac, in #34.4.10, pp. 26–38. #34.4.54

Hannah, John. False position in Leonardo of Pisa's *Liber Abbaci*, *Historia Mathematica* **34** (3) (2007), 306–332. This paper examines the rhetorical methods for single false position explained by Leonardo of Pisa in his *Liber Abbaci*. (SED) #34.4.55

Knobloch, Eberhard. Mathematical methods in preindustrial technology and machines, in #34.4.177, pp. 3–20. This paper discusses building techniques and the presence or absence of mathematical calculations in these techniques during the Middle Ages and the Renaissance. See the review by Cristina Irimia in *Zentralblatt MATH* 1109.01002. (SED) #34.4.56

Rommevaux, Sabine. Un exemple de question mathématique au Moyen Âge [An example of mathematical *questio* in the Middle Ages], *Annals of Science* **63** (4) (2006), 425–445. Examines the scholastic technique of *questio*, which puts forth both pro and con arguments concerning a particular thesis before attempting to resolve them into a correct answer, as it was applied in three late medieval treatises to the mathematical topic of incommensurability between the side and diagonal of a square. (KP) #34.4.57

Wickel, Gabriele. Konvergenz bei Nicole Oresme (1320–1382), in #34.4.10, pp. 39–56. #34.4.58

## Renaissance

Betsch, Gerhard. Michael Mästlin (1550–1631), in #34.4.10, pp. 98–118. #34.4.59

Buchwald, Jed Z. Discrepant measurements and experimental knowledge in the early modern era. *Archive for History of Exact Science* **60** (6) (2006), 565–649. Discusses methods of picking "best" of a collection of error-prone

measurements, especially by Brahe. The paper also considers interactions between theory, experiment and instrumentation. See the review by Owen Gingerich in *Mathematical Reviews* 2255212. (**2007g**:01006). (DJM) #34.4.60

Chabás, José. Abraham Zacut's contribution to navigation, in #34.4.28, pp. 91–108. #34.4.61

Deschauer, Stefan. Mathematik vor der Zeitenwende – einige Glanzlichter in einer byzantinischen Handschrift von 1436, in #34.4.10, pp. 57–70. #34.4.62

Domingues, Francisco Contente. Nautical training and ship command in Portugal (15th to 19th centuries), in #34.4.28, pp. 275–291. #34.4.63

dos Reis, António Estácio. Pedro Nunes' nonius, in #34.4.28, pp. 195–223. #34.4.64

Goldstein, Bernard R. Preliminary remarks on Judah ben Verga's contributions to astronomy, in #34.4.28, pp. 63–90. #34.4.65

Knobloch, Eberhard. Nunes and Clavius, in #34.4.28, pp. 163–194. #34.4.66

Navarro-Brotóns, Víctor. Astronomy and cosmography 1561–1625. Different aspects of the activities of Spanish and Portuguese mathematicians and cosmographers, in #34.4.28, pp. 225–274. #34.4.67

Navarro-Brotóns, Víctor. The teaching of the mathematical disciplines in sixteenth-century Spain, *Science and Education* **15** (2–4) (2006), 209–233. Examines influential teachers and mathematical subjects taught in Spanish universities in the 16th century. See the review by Karl-Heinz Schlote in *Zentralblatt MATH* 1106.01010. (PWH) #34.4.68

Pantin, Isabelle. Teaching mathematics and astronomy in France: The Collège Royal (1550–1650), *Science and Education* **15** (2–4) (2006), 189–207. The author discusses the teaching of mathematics and astronomy at the Collège Royal in the period 1550–1650. See the review by Cristina Irimia in *Zentralblatt MATH* 1110.01006. (LM) #34.4.69

Sylla, Edith. Mathematics in the *Liber de triplici motu* of Alvarus Thomas of Lisbon, in #34.4.28, pp. 109–161. #34.4.70

*See also*: #34.4.56

**17th century**

Auclair, Raymond. Determining the orbital periods of Jupiter's Galilean satellites using simple devices, *The Journal of the Royal Astronomical Society of Canada* **101** (3) (2007), 95–103. In this very personal account, Auclair uses methods that represent 17th-century procedures for observing Jupiter's Galilean satellites from 8 March to 11 May 2006. Using a reticulated eyepiece made from hair and glue for positional measurements and a metronome for timing, he modeled circular orbits, as would have been the historical first approximation. (DO) #34.4.71

Baldini, Ugo. The teaching of mathematics in the Jesuit colleges of Portugal, from 1640 to Pombal, in #34.4.28, pp. 293–465. #34.4.72

Bauke, Dieter. Die Wechselwirkung von Philosophie und Mathematik bei E.W. von Tschirnhaus (1651–1708), in #34.4.10, pp. 193–207. #34.4.73

Beeley, Philip. Logik und Mathematik bei John Wallis (1616–1703), in #34.4.10, pp. 154–171. #34.4.74

Camenietzki, Carlos Ziller; and Pedrosa, Fábio Mendonça. The return of the comet of 1682 and the early works of José Monteiro da Rocha [in Portuguese], in #34.4.28, pp. 467–491. #34.4.75

Carolino, Luís Miguel. Cristoforo Borri and the epistemological status of mathematics in seventeenth-century Portugal, *Historia Mathematica* **34** (2) (2007), 187–205. An investigation into the Jesuit Cristoforo Borri's classification of the sciences, and in particular, mathematics. The author argues that Borri's high regard of mathematics played a significant role in changes to cosmology in 17th-century Portugal. (SED) #34.4.76

Grasshoff, Gerd. Der "Kampf um den Mars" als größte wissenschaftliche Niederlage Johannes Keplers [The "struggle for Mars" as the greatest scientific defeat of Johannes Kepler], in #34.4.30, pp. 79–90. The author presents

Kepler's struggle for Mars as a defeat instead of a triumph. See the review by Karin Reich in *Zentralblatt MATH* 1108.01005. (LM) #34.4.77

Holme, Audun. Some glimpses from the history of mathematics: The controversy between Newton and Leibniz, and a little more [in Norwegian], *Normat* **54** (1) (2006), 27–39. An overview of Newton's life and work, including a brief biography and accounts of the controversies with Leibniz and with Hooke. See the review by Øystein Linnebo in *Zentralblatt MATH* 1105.01005. (PWH) #34.4.78

Kleiner, Israel. Principle of continuity. A brief history, *Mathematical Intelligencer* **28** (4) (2006), 49–57. An illuminating discussion of applications of the Principle of Continuity (what holds in a given case continues to hold in what appears to be like cases) in analysis, algebra, geometry, and number theory from the 17th to the 19th centuries. The author selects several examples and for each describes in detail the transition from the metaphysics (vague analysis) to the mathematics (fruitful theories) of the problem. (FA) #34.4.79

Lumiste, Ülo; and Piirimäe, Helmut. Sven Dimberg, an introductor of Newton's *Principia* into the University of Tartu in the 1690s. I. Translation by Jaak Peetre and Staffan Rodhe with annotations [in Swedish], *Normat* **53** (4) (2005), 155–172. In the first of a three-part series, the authors discuss the work of Sven Dimberg, mathematics professor at the University of Tartu (Estonia) during the end of the 17th century. (SED) #34.4.80

Lumiste, Ülo; and Piirimäe, Helmut. Sven Dimberg, an introductor of Newton's *Principia* into the University of Tartu in the 1690s. II. Translation by Jaak Peetre and Staffan Rodhe [in Swedish], *Normat* **54** (1) (2006), 18–26. This second of three articles describes Dimberg's work as professor of mathematics in Estonia in the 1690s. See the review by Øystein Linnebo in *Zentralblatt MATH* 1105.01006. (PWH) #34.4.81

Lumiste, Ülo; and Piirimäe, Helmut. Sven Dimberg, an introductor of Newton's *Principia* into the University of Tartu in the 1690s. III. Translation by Jaak Peetre and Staffan Rodhe with historic annotations by Staffan Rodhe [in Swedish], *Normat* **54** (2) (2006), 61–74. In this final installment, the authors discuss Sven Dimberg's curriculum program for the academic year 1695/1696 at the University of Tartu (Estonia) and his lectures on Newton's doctrine presented in *Philosophiae Naturalis Principia Mathematica*. See the review by V.N. Salii in *Zentralblatt MATH* 1107.01003. (LM) #34.4.82

Mayer, Uwe. "Neither unuseful nor absurd when rightly understood" – Imaginäre Zahlen und ihre Darstellung bei Wallis, Tschirnhaus, und Leibniz, in #34.4.10, pp. 172–187. #34.4.83

Pedrosa, Fábio Mendonça. *See* #34.4.75.

Peetre, Jaak. *See* #34.4.80; #34.4.81; and #34.4.82.

Peiffer, Jeanne. Jacob Bernoulli, teacher and rival of his brother Johann, *Journal Électronique d'Histoire des Probabilités et de la Statistique* **2** (1b) (2006), 22 pp. (electronic). This paper discusses Jacob and Johann Bernoulli's common work on Leibnizian differential and integral calculus and analyzes the relations and rivalry between the two brothers. See the review by Ülo Lumiste in *Zentralblatt MATH* 1108.01006. (LM) #34.4.84

Piirimäe, Helmut. *See* #34.4.80; #34.4.81; and #34.4.82.

Pourciau, Bruce. Force, deflection, and time: Proposition VI of Newton's Principia, *Historia Mathematica* **34** (2) (2007), 140–172. An extended study of Book I, Proposition VI, and its first corollary, of Newton's *Principia*. (SED) #34.4.85

Probst, Siegmund. Leibniz und Wallis (1672–1676), in #34.4.10, pp. 188–192. #34.4.86

Rodhe, Staffan. *See* #34.4.80; #34.4.81; and #34.4.82.

*See also*: #34.4.63; and #34.4.69.

**18th century**

Bellhouse, David R. Lord Stanhope's papers on the Doctrine of Chances, *Historia Mathematica* **34** (2) (2007), 173–186. A discussion of the manuscripts of Philip Stanhope (1714–1786), second Earl of Stanhope, on probability. (SED) #34.4.87

Bernoulli, Jacob; and Leibniz, Gottfried. Quelques échanges? [Some exchanges?]. With annotations by Norbert Meusnier. *Journal Électronique d'Histoire des Probabilités et de la Statistique* **2** (1) (2006), 15 pp., electronic. This paper presents an exchange of letters between Jacob Bernoulli and Gottfried Leibniz while the former was in the process of writing his *Ars Conjectandi*. See the review by Ülo Lumiste in *Zentralblatt MATH* 1108.01008. (LM) #34.4.88

Brian, Eric. Les phénomènes sociaux que saisissait Jakob Bernoulli, aperçus de Condorcet à Auguste Comte [The social phenomena understood by Jakob Bernoulli, as explicated from Condorcet to Auguste Comte], *Journal Électronique d'Histoire des Probabilités et de la Statistique* **2** (1b) (2006), 15 pp. (electronic). This paper discusses Comte's understanding of the three states of knowledge and his attitude towards the theory of probability applied to the main social theories. See the review by O.B. Cheinine in *Zentralblatt MATH* 1108.01009. (LM) #34.4.89

da Cunha, José Anastácio. Essai sur les principes de mécanique de José Anastácio da Cunha (1744–1787) [Essay on the principles of mechanics by José Anastácio da Cunha (1744–1787)]. Translated from the Portuguese by P. Radelet de Grave and Luís Saraiva, in #34.4.28, pp. 539–560. #34.4.90

Fellmann, Emil A. *Leonhard Euler*. Translated from the German by Erika Gautschi and Walter Gautschi. Basel: Birkhäuser, 2007, xv+179 pp. This book is the English version of Fellmann's biography of Leorhard Euler written in 1995. See the review by Eberhard Knobloch in *Zentralblatt MATH* 1108.01014. (LM) #34.4.91

Garcia Alonso, Marta; and Teira Serrano, David. The theology of large numbers: A conjecture, *Journal Electronique d'Histoire des Probabilités et de la Statistique* **2** (1) (2006), 18 pp. (electronic). Discussion of Jakob Bernoulli's treatment of theological problems raised by probability theory. See the review by Franz Lemmermeyer in *Zentralblatt MATH* 1105.01007. (PWH) #34.4.92

Gautschi, Erika. *See* #34.4.91.

Gautschi, Walter. *See* #34.4.91.

Leibniz, Gottfried. *See* #34.4.88.

Meusnier, Norbert. *See* #34.4.88.

Queiró, João Filipe. José Anastácio da Cunha: An assessment, in #34.4.28, pp. 493–513. #34.4.93

Radelet de Grave, Patricia. Necessity and contingency in natural philosophy during the XVIIIth century, da Cunha's position, in #34.4.28, pp. 515–538. #34.4.94

Radelet de Grave, Patricia. *See also* #34.4.90.

Richards, Joan L. Historical mathematics in the French eighteenth century, *Isis* **97** (4) (2006), 700–713. Explores how French mathematicians strove to reconcile traditional (geometric) concepts of mathematical knowledge with the new perspectives of eighteenth-century analysis, by means of narrative approaches frequently involving the history of mathematics. This "enlightened mathematics" faded out in the post-Revolutionary period when Cauchy "radically reconceptualized and restructured mathematics to be rigorous rather than narrative." (KP) #34.4.95

Saraiva, Luís M.R. *See also* #34.4.90.

Schneider, Ivo. Direct and indirect influences of Jakob Bernoulli's *Ars Conjectandi* in 18th century Great Britain, *Journal Électronique d'Histoire des Probabilités et de la Statistique* **2** (1) (2006), 17 pp. (electronic). This paper discusses the impact of Jakob Bernoulli's *Ars Conjectandi* in Great Britain in the 18th century. See the review by Ülo Lumiste in *Zentralblatt MATH* 1108.01010. (LM) #34.4.96

Schubring, Gert. Neues über Legendre in Italien, in #34.4.10, pp. 256–274. #34.4.97

Sommerhoff-Benner, Silvia. Die Lehrbücher Christian Wolffs (1679–1754) und dernen Verwendung im Bildungswesen, in #34.4.10, pp. 208–219. #34.4.98

Teira Serrano, David. *See* #34.4.92.

*See also*: #34.4.63; #34.4.72; #34.4.79; #34.4.84; #34.4.160; and #34.4.180.

**19th century**

Aggarwal, Abhilasha. Mathematical books for and in India in the nineteenth century, *British Society for the History of Mathematics Bulletin* **22** (1) (2007), 11–21. A portion of the author's thesis on 19th-century British mathematics education for India, this paper surveys mathematics books published in England for India and those translated in India. (PWH) #34.4.99

Armatte, Michel. Les statisticiens du XIXème siècle lecteurs de J. Bernoulli [The statisticians of the 19th century as readers of Jakob Bernoulli], *Journal Electronique d'Histoire des Probabilités et de la Statistique* **2** (1b) (2006), 21 pp. (electronic). Investigates the extent to which 19th-century authors (e.g., Lacroix, Quetelet, Cournot) quote Bernoulli's *Ars Conjectandi*. See the review by Franz Lemmermeyer in *Zentralblatt MATH* 1105.01008. (PWH) #34.4.100

Blauwendraat, Hendrik. Von Geradführungen zur Burmestertheorie. Eine Einführung in die Kinematik des 19. Jahrhunderts, in #34.4.10, pp. 367–381. #34.4.101

Bru, Bernard. The Bernoulli code [in French], *Journal Electronique d'Histoire des Probabilités et de la Statistique* **2** (1) (2006), 27 pp. (electronic). Commentary on Antoine Cournot's 1928 contribution to probability theory. See the review by O.B. Cheinine in *Zentralblatt MATH* 1106.01011. (PWH) #34.4.102

Bru, Bernard; and Martin, Thierry. Le baron de Férussac, la couleur de la statistique et la topologie des sciences [The baron of Férussac, the colour of statistics and topology of sciences], *Journal Electronique d'Histoire des Probabilités et de la Statistique* **1** (2) (2005), 43 pp. (electronic). Brief examination of André d'Audebard, baron de Férussac (1786–1836) and his work as editor of a scientific journal. Includes biographical details and a discussion of Férussac's thinking about the collection and representation of social statistics. See the review by O.B. Cheinine in *Zentralblatt MATH* 1106.01012. (PWH) #34.4.103

Cantor, Georg. Historische Notizen über die Wahrscheinlichkeitsrechnung (1873) [Historical notes on the theory of probability (1873)], *Journal Électronique d'Histoire des Probabilités et de la Statistique* **2** (1b) (2006), 11 pp. (electronic). A reprint, along with a French translation of Cantor's 1873 report on probability. See the review by O.B. Cheinine in *Zentralblatt MATH* 1107.01010. (SED) #34.4.104

Czichowski, Günter. *See* #34.4.114.

Dell'Aglio, Luca. Geometry and physics in the pre-relativistic research of Levi-Civita concerning tensor analysis [in Italian], *Physis Rivista Internazionale di Storia della Scienza (N.S.)* **42** (1) (2005), 155–188. Investigates "the links between geometry and physics in Levi-Civita's pre-relativistic works concerning the absolute differential calculus." Levi-Civita's interpretation of tensors and related concepts is said to be essentially geometric, shedding light on "the process of 'geometrization' of a problem after the introduction of non-Euclidean geometry." (KP) #34.4.105

Droesbeke, Jean-Jacques. La place de l'enseignement dans la vie et l'oeuvre de Quetelet [The place of instruction in Quetelet's life and work], *Journal Électronique d'Histoire des Probabilités et de la Statistique* **1** (2) (2005), 22 pp. (electronic). The author discusses Quetelet's activities as a teacher and a pedagogue along with his role in the attempt to reorganize Belgium education. See the review by Albert C. Lewis in *Zentralblatt MATH* 1107.01005. (LM) #34.4.106

Engle, Friedrich. *See* #34.4.114.

Flood, Raymond. Mathematics in Victorian Ireland, *British Society for the History of Mathematics Bulletin* **21** (3) (2006), 200–211. Addresses the question of the existence of "Irish mathematics" in the 19th century by examining the teaching and research of mathematics during the period. (PWH) #34.4.107

Folkerts, Menso; and Neumann, Olaf, eds. *Der Briefwechsel zwischen Kummer und Reuschle. Ein Beitrag zur Geschichte der algebraischen Zahlentheorie* [*The Correspondence between Kummer and Reuschle. A Contribution to the History of Algebraic Number Theory*], Augsburg: ERV Dr. Erwin Rauner Verlag, 2006, viii+276 pp. This volume presents the correspondence between Ernst Eduard Kummer and Karl Gustav Reuschle which consists of 119 letters exchanged over the period from 1856 to Reuschle's death in 1875. See the review by Ülo Lumiste in *Zentralblatt MATH* 1108.01011. (LM) #34.4.108

Fritzsche, Bernd. *See* #34.4.114.

Gow, Rod. Life and work of George Salmon (1819–1904), *British Society for the History of Mathematics Bulletin* **21** (3) (2006), 212–218. Brief survey of Salmon's life and work. (PWH) #34.4.109

Gray, Jeremy. Overstating their case? Reflections on British mathematics in the nineteenth century, *British Society for the History of Mathematics Bulletin* **21** (3) (2006), 178–185. Argues that 19th-century British mathematicians isolated themselves from contemporary continental developments and "had an unduly high opinion of themselves." Also considers the implication of this thesis for certain historiographical issues. (PWH) #34.4.110

Hald, A. The early history of the cumulants and the Gram–Charlier series, *International Statistical Review* **68** (2) (2000), 137–153. This paper discusses the early history of the cumulants and the Gram–Charlier series. The translation from Danish into English of Thiele's 1899 paper on the cumulants is included in the appendix. (LM) #34.4.111

Hartimo, Mirja. Mathematical roots of phenomenology: Husserl and the concept of number, *History and Philosophy of Logic* **27** (4) (2006), 319–337. Traces Husserl's phenomenology back to his *Philosophy of Arithmetic* as an attempt to provide foundations for analysis as arithmetized by Weierstrass. Comparing Husserl's approach to Frege's, the author says, "[W]hile Frege analyses within *Begriffsschrift*, Husserl analyses our experiences. The difference in their methods of analysis is what ultimately grows into two separate schools in philosophy in the 20th century." (KP) #34.4.112

Knothe, Klaus. *Berufsverbot im 19. Jahrhundert. Zum Schicksal von Johann Albert Arndt (1811–1882), Mathematik- und Physiklehrer am Torgauer Gymnasium* [*Jobs Ban in the 19th Century. On the Fate of Johann Albert Arndt (1811–1882), Teacher of Mathematics and Physics at the Torgau Gymnasium*], Torgau: Torgauer Geschichtsverein, 2004, 56 pp. The author discusses the forced retirement of the mathematics and physics teacher Johann Albert Arndt from the Torgau Gymnasium in 1863. See the review by Reinhard Siegmund-Schultze in *Zentralblatt MATH* 1109.01009. (LM) #34.4.113

Lie, Sophus; Study, Eduard; and Engel, Friedrich. *Beiträge zur Theorie der Differentialinvarianten* [*Contributions to the Theory of Differential Invariants*]. Edited and with a foreword and an appendix by Günter Czichowski and Bernd Fritzsche. Leipzig: Teubner, 1993, 228 pp. This book includes important works on the development of Lie's theory of differential invariants by Sophus Lie, Eduard Study, and Friedrich Engel. See the review by Jeffrey S. Joel in *Zentralblatt MATH* 1107.01313. (LM) #34.4.114

Magnello, M. Eileen. Victorian vital and mathematical statistics, *British Society for the History of Mathematics Bulletin* **21** (3) (2006), 219–229. Examines the work of Thomas Malthus, William Farr, Edwin Chadwick, and Florence Nightingale, as well as the ideas of Darwin and their place in the work of Francis Galton, W.F.R. Weldon, and Karl Pearson. (PWH) #34.4.115

Martin, Thierry. *See* #34.4.103.

Maxwell, James Clerk. *The Scientific Letters and Papers of James Clerk Maxwell*, Vol. III, 1874–1879, Peter M. Harman, ed., Cambridge: Cambridge University Press, 2002, xxvi+932 pp. This book is the final volume of James Clark Maxwell's correspondence and manuscript papers (1874–1879). This edition is annotated with a full historical commentary. (LM) #34.4.116

Moore, Gregory H. The evolution of the concept of homeomorphism, *Historia Mathematica* **34** (3) (2007), 333–343. In this research note, the author discusses three ways that mathematicians characterized topology, or analysis situs, during the late 19th and early 20th centuries. (SED) #34.4.117

Neumann, Olaf. *See* #34.4.108.

Neumann, Peter M. The concept of primitivity in group theory and the second memoir of Galois, *Archive for History of Exact Science* **60** (4) (2006), 379–429. Translates the first part of Galois' second memoir and discusses the development of the concept of primitivity during the 19th century. See the review by Lawrence Somer in *Mathematical Reviews* 2238932 (**2007h**:01005). (DJM) #34.4.118

Parshall, Karen Hunger. The British development of the theory of invariants (1841–1895), *British Society for the History of Mathematics Bulletin* **21** (3) (2006), 186–199. Describes the development of 19th-century invariant theory in the hands of Arthur Cayley, James Joseph Sylvester, and George Salmon. (PWH) #34.4.119

Reich, Karin. Der Briefwechsel Rudolf Mehmkes, in #34.4.10, pp. 398–406. #34.4.120

Rice, Adrian. British Mathematics, 1837–1901, *British Society for the History of Mathematics Bulletin* **21** (3) (2006), 164–177. Highlights mathematical developments during the period, commenting on some limitations of Victorian British mathematics. (PWH) #34.4.121

Rowe, David E. Euclidean geometry and physical space, *Mathematical Intelligencer* **28** (2) (2006), 51–59. A discussion of the many elements that led to the acceptance of non-Euclidean geometry around 1900. The author claims that prior to this time geometry was considered to be wedded to a physical world with discernable geometrical features. The historical role of measurement in geometry is reviewed in order to discuss curvature as an intrinsic property of a surface. Many views are discussed, Newton's, Gauss's, and Hilbert's being the principal ones. The view that Euclidean geometry was considered to be the model of a rigorous system based on deductive reasoning is exemplified by Charles L. Dodgson in his *Euclid and His Modern Rivals* (1879). (FA) #34.4.122

Schlote, Karl-Heinz. Mathematische Psychologie in Leipzig, in #34.4.10, pp. 382–397. #34.4.123

Study, Eduard. *See* #34.4.114.

Thiele, Rüdiger. Die Tragweite der Feldtheorie – Eine historische Betrachtung, in #34.4.10, pp. 303–324. #34.4.124

Vollmers, Carsten. Über die wechselseitige Beeinflussung von Adolf Hurwitz und Hermann Minkowski, in #34.4.10, pp. 288–302. #34.4.125

Warnecke, Gerhard. "Ja, ich kann stolz darauf sein . . . ," in #34.4.10, pp. 275–287. A discussion of the life and work of Julius Plücker. (SED) #34.4.126

Zitarelli, David. Straddling centuries: The struggles of a mathematician and his university to enter the ranks of research mathematics, 1870–1950, *Historia Mathematica* **34** (3) (2007), 271–288. This paper traces the professional development of the American mathematician, Joseph B. Reynolds, and the institutional development of his mathematics department at Lehigh University. (SED) #34.4.127

*See also*: #34.4.42; #34.4.63; #34.4.79; #34.4.98; #34.4.97; #34.4.160; #34.4.166; and #34.4.180.

**20th century**

Albers, Don. John Todd – numerical mathematics pioneer, *The College Mathematics Journal* **38** (1) (2007), 2–23. Interview with Todd, covering (among other topics) his childhood, work with Littlewood, marriage to Olga Taussky, war work, and conversion to numerical analysis. (PWH) #34.4.128

Alcaine, Guillermo García. Einstein y la mecánica cuántica [Einstein and quantum mechanics], in #34.4.143, pp. 107–118. #34.4.129

Aldrich, J. Fisher's "inverse probability" of 1930, *International Statistical Review* **68** (2) (2000), 155–172. This paper discusses Fisher's fiducial argument and its origin in his earlier work. (LM) #34.4.130

Almira, José María. On logic and mathematics: Some remarks concerning the foundations of mathematics, *Revista de la Academia Canaria de Ciencias* **17** (1–2) (2006), 117–139. A detailed summary of work on some areas of foundations of mathematics from Frege and Peano to Cohen and Gentzen. See the review by Solomon Marcus in *Mathematical Reviews* 2263810 (**2007h**:01006). (DJM) #34.4.131

Alvarez, Enrique. Einstein's blunder, in #34.4.143, pp. 93–106. #34.4.132

Arnold, Wolfgang. Die *MSB* – 25 Jahre *Mathematische Schülerbücherei* in der DDR von 1965 bis 1990, in #34.4.10, pp. 484–497. #34.4.133

Bassler, O. Bradley. The surveyability of mathematical proof: A historical perspective, *Synthese* **148** (1) (2006), 99–133. Explores historical aspects of the debate on the surveyability of proof inspired by Thomas Tymockzko's seminal 1986 paper on the subject, and proposes a distinction between local and global surveyability. (KP) #34.4.134

Bennett, Stuart. Technological concepts and mathematical models in the evolution of control engineering, in #34.4.177, 103–128. This paper discusses the theory and practice of control engineering during the 20th century. See the review by Ülo Lumiste in *Zentralblatt MATH* 1109.01001. (SED) #34.4.135

Berges, Javier Turrión. Einstein en España [Einstein in Spain], in #34.4.143, pp. 35–68. #34.4.136

Bernstein, Jeremy. Max Born and the quantum theory, *American Journal of Physics* **73** (11) (2005), 999–1008; Erratum, *American Journal of Physics* **74** (2) (2006), 160. Brief summary of the work of Max Born and criticism of a recent biography of Born. See the review by Arne Schirrmacher in *Mathematical Reviews* 2218281 (**2007g**:81003ab). (DJM) #34.4.137

Binder, Christa; and Schmitt, Peter. Platonische und archimedische Körper – Entwicklung der Definitionen, in #34.4.10, pp. 132–142. #34.4.138

Blass, Andreas; and Gurevich, Yuri. Algorithms: A quest for absolute definitions, in #34.4.184, pp. 24–57. Traces the development of the process of understanding and formalizing the concept of algorithm and related ideas such as computability, focusing on the work of Church and Turing. See the review by George Tourlakis in *Mathematical Reviews* 2267160. (KP) #34.4.139

Bokan, Neda. Prof. dr Mileva Prvanovic — her contribution to differential geometry, *Kragujevac Journal of Mathematics* **25** (2003), 111–125. Summary of the professional work of the Serbian mathematician, Mileva Prvanovic (1929– ). See the review by Irena Comic in *Zentralblatt MATH* 1105.01302. (PWH) #34.4.140

Bondía, José M. El mundo después de Einstein [The world after Einstein], in #34.4.143, pp. 1–10. #34.4.141

Boskoff, Wladimir G.; and Suceavă, Bogdan D. Barbilian spaces: The history of a geometric idea, *Historia Mathematica* **34** (2) (2007), 221–224. In this research note, the authors examine the history and evolution of Barbilian spaces. (SED) #34.4.142

Boya, Luis Joaquín, ed. *Einstein and the Year of Physics*, Zaragoza: Real Academia de Ciencias Exactas, Físicas, Químicas y Naturales de Zaragoza, 2005, 118 pp. Items in this volume are listed here separately as #34.4.129; #34.4.132; #34.4.136; #34.4.141; #34.4.151; #34.4.193; and #34.4.209. #34.4.143

Bridges, Douglas S. Church's thesis and Bishop's constructivism, in #34.4.184, pp. 58–65. (KP) #34.4.144

Burde, Gerhard; Schwarz, Wolfgang; and Wolfart, Jürgen. Max Dehn und das Mathematische Seminar der Universität Frankfurt, in #34.4.10, pp. 462–483. #34.4.145

Campbell-Kelly, Martin. From the world brain to the world wide web, *British Society for the History of Mathematics Bulletin* **22** (1) (2007), 1–10. Considers some ideas of H.G. Wells, Vannevar Bush, and J.C.R. Licklider as precursors to the world wide web. (PWH) #34.4.146

Carlson, Beverly A. Women in the statistics profession: A status report, *International Statistical Review* **68** (3) (2000), 339–352. This paper analyzes the representation of women over the years in the International Statistical Institute (ISI) and in the statistics profession. (LM) #34.4.147

Cerezo, María. *The Possibility of Language. Internal Tensions in Wittgenstein's Tractatus*, Stanford, CA: CSLI Publications, 2005, xiv+321 pp. Explains Wittgenstein's ideas on the conditions for the possibility of language as attempts at solving problems with the symbolisms proposed by Frege and Russell. (KP) #34.4.148

Cerqui, Daniela. From Turing to the information society, in #34.4.205, pp. 59–74. #34.4.149

Copeland, B. Jack; and Proudfoot, Diane. The computer, artificial intelligence, and the Turing test, in #34.4.205, pp. 317–351. #34.4.150

Cortés, José L. Más allá de la relatividad especial [Beyond special relativity], in #34.4.143, pp. 25–34. #34.4.151

Dahan, Amy; and Pestre, Dominique. Transferring formal and mathematical tools from war management to political, technological, and social intervention (1940–1960), in #34.4.177, pp. 79–100. This article discusses the group

of "engineer-scientists" who developed operational research, game theory, programming, queuing theory, and cost–benefit analysis during World War II and the Cold War. See the review by Silke Göbel in *Zentralblatt MATH*. (SED) #34.4.152

Demailly, Jean Pierre. Refoundation of mathematics in France [in Italian], *Lettera Matematica Pristem* **42** (2001), 10–14. Discusses the role played by the French in the creation of the "new math." See the review by Cristina Irimia in *Zentralblatt MATH* 1106.01306. (PWH) #34.4.153

Dick, Auguste. *See* #34.4.195.

Ebbinghaus, Heinz-Dieter. Zermelo: Boundary numbers and domains of sets continued, *History and Philosophy of Logic* **27** (4) (2006), 285–306. The author summarizes material from Zermelo's Nachlass detailing his unsuccessful attempts to prove the existence of strongly inaccessible ordinals. See the review by E. Mendelson in *Mathematical Reviews* 2272994 (**2007h**:03003). (DJM) #34.4.154

Eyink, Gregory L; and Sreenivasan, Katepalli R. Onsager and the theory of hydrodynamic turbulence. *Reviews of Modern Physics* **78** (1) (2006), 87–135. The authors summarize the work of Lars Onsager in hydrodynamic turbulence, much of which was never published, appearing only in letters and private notes. See the review by Oleg V. Zaboronsky in *Mathematical Reviews* 2214822 (**2007g**:76108). (DJM) #34.4.155

Girlich, Hans-Joachim. A.N. Kolmogoroff (1903–1987) und die Ursprünge der Theorie stochastischer Prozesse, in #34.4.10, pp. 407–421. #34.4.156

Gladwin, Lee A. Alan M. Turing's contributions to co-operation between the UK and the US, in #34.4.205, pp. 463–473. #34.4.157

Glick, Thomas F.; and Sánchez Ron, José M. Science frustrated: The "Einstein Institute" in Madrid, *Minerva* **44** (4) (2006), 355–378. Based on newspaper articles of the time and correspondence between Einstein and the Spanish linguist, A.S. Yahuda. In *Zentralblatt MATH* 1105.01011, Reinhard Siegmund-Schultze writes that this article "discusses the failed appointment of Albert Einstein as 'Extraordinary' professor for physics in Madrid, which he first accepted in April 1933." (PWH) #34.4.158

Gurevich, Yuri. *See* #34.4.139.

Gusev, S.V.; and Likhtarnikov, A.L. An outline of the history of the Kalman–Popov–Yakubovich lemma and the $S$-procedure, *Automation and Remote Control* **67** (11) (2006), 1768–1810. Surveys the history of two major results in mathematical system analysis and control theory, namely the Kalman–Popov–Yakubovich lemma and the theorem on the losslessness of the $S$-procedure, including research directly related to these results. (KP) #34.4.159

Hald, Anders. *A History of Parametric Statistical Inference from Bernoulli to Fisher, 1713–1935*, New York, NY: Springer, 2007, xiv+223 pp. This book presents over two hundred years of history of parametric statistical inference. See the review by O.B. Cheinine in *Zentralblatt MATH* 1107.01006. (LM) #34.4.160

Hodges, Andrew P. Alan Turing: An introductory biography, in #34.4.205, pp. 3–8. #34.4.161

Hodges, Andrew P. Did Church and Turing have a thesis about machines?, in #34.4.184, pp. 242–252. Focuses on the historical issue of the "confluence of ideas" in 1936 when the Church–Turing thesis emerged as a formulation of the concept of effective calculability. (KP) #34.4.162

Hodges, Andrew P. What would Alan Turing have done after 1954?, in #34.4.205, pp. 43–58. #34.4.163

Hoffmann, Dieter. *Einsteins Berlin. Auf den Spuren eines Genies* [*Einsteins Berlin. On the Traces of a Genius*], Weinheim: Wiley–VCH, 2006, viii+224 pp. The author portrays Albert Einstein in Berlin describing the apartments where he lived, the places where he worked, his friends, his family, and the women who were close to him. See the review by Karin Reich in *Zentralblatt MATH* 1108.01015. (LM) #34.4.164

Hunziker, Herbert, ed. *Der jugendliche Einstein und Aarau: Einsteins letztes Schuljahr—Relativität, Brownsche Bewegung, Lichtquanten und Astrophysik* [*The Young Einstein and Aarau: Einstein's Last School Year—Relativity, Brownian Motion, Light Quanta and Astrophysics*], Berlin: Birkhäuser Verlag, 2005, x+205 pp. Surveys the teenage Einstein's early thoughts on physics and the foundations of his relativity theory as reflected in his preparatory work

in 1895–1896 for his high school graduation examinations. Includes reproductions of three of his senior essays. (KP) #34.4.165

Israel, Giorgio. Technological innovation and new mathematics: van der Pol and the birth of nonlinear dynamics, in #34.4.177, pp. 52–78. This essay discusses the contributions of A.J. Lotka, A. Volterra, and, in particular, B. van der Pol to nonlinear dynamics. See the review by Silke Göbel in *Zentralblatt MATH* 1110.01008. (SED) #34.4.166

Janusz, Robert. *See* #34.4.184.

Jarnik, Jiri; Schwabik, Stefan; Tvrdý, Milan; and Vrkoc, Ivo. Eighty years of Jaroslav Kurzweil, *Mathematica Bohemica* **131** (2) (2006), 113–143. This paper presents some of Jaroslav Kurzweil's results and includes a complete chronological list of his scientific publications. (LM) #34.4.167

Kahle, Reinhard. The incompleteness theorems of Kurt Gödel [in Portuguese], *Boletim da Sociedade Portuguesa de Matemática* **55** (2006), 63–76. A nontechnical presentation of Gödel's incompleteness theorems, introduced with historical context. (KP) #34.4.168

Klein, David. A quarter century of US "math wars" and political partisanship, *British Society for the History of Mathematics Bulletin* **22** (1) (2007), 22–33. Examines a series of controversies in school mathematics education in the U.S. from the 1980s, considering the role of political ideologies in the disagreements. (PWH) #34.4.169

Kurzweil, Ray. The law of accelerating returns, in #34.4.205, pp. 381–416. #34.4.170

Lemmermeyer, Franz; and Roquette, Peter, eds. *Helmut Hasse und Emmy Noether: Die Korrespondenz 1925–1935* [*Helmut Hasse and Emmy Noether: Their Correspondence 1925–1935*], Göttingen: Universitätsverlag Göttingen, 2006, 301 pp. Reproduces, with commentary, cross-references, etc., the complete surviving correspondence of Hasse and Noether (82 letters, 79 of them by Noether). "The correspondence reflects a crucial period in the development of 20th century algebra and number theory, in particular class field theory." With an introduction in English. See the review by Karl-Heinz Schlote in *Zentralblatt MATH* 1101.01010. (KP) #34.4.171

Li, Di. Transmission of the mathematical theories of German mathematicians in China during the first half of the 20th century, *Journal of Inner Mongolia Normal University* **34** (1) (2005), 108–115. The author discusses the introduction of mathematical notions of German origin into China during the first half of the 20th century. See the review by J.-C. Martzloff in *Zentralblatt MATH* 1109.01011. (LM) #34.4.172

Liberzon, M.R. Outlines in the translation in *Automation and Remote Control* **67** (10) (2006), 1610–1644. An overview of the theory of absolute stability including a brief historical survey of its development. (KP) #34.4.173

Likhtarnikov, A.L. *See* #34.4.159.

Lorenz, Falko. Käte Hey und der "Hauptsatz der Algebrentheorie," in #34.4.10, pp. 340–354. #34.4.174

Lourenço, M.S. A philosopher of evidence [in Portuguese], *Boletim da Sociedade Portuguesa de Matemática* **55** (2006), 91–103. Examines Gödel's epistemological ideas concerning finitistic evidence, and traces their roots historically starting with Hilbert and Bernays's *Grundlagen*. (KP) #34.4.175

Lucertini, Mario. Coping with complexity in the management of organized systems, in #34.4.177, pp. 221–238. This paper collects ideas throughout the 20th century about how to deal with complex systems. See the review by Ülo Lumiste in *Zentralblatt MATH* 1109.01012. (SED) #34.4.176

Lucertini, Mario; Millán Gasca, Ana; and Nicolò, Fernando, eds. *Technological Concepts and Mathematical Models in the Evolution of Modern Engineering Systems. Controlling, Managing, Organizing*, Basel: Birkhäuser, 2004, hardcover, xvii+246 pp. Items in this collection concerning the history of mathematics are abstracted here separately as #34.4.135; #34.4.152; #34.4.166; #34.4.176; #34.4.180; #34.4.181; and #34.4.211. (SED) #34.4.177

Matveev, A.S. Optimal control theory in the works of V.A. Yakubovich [in Russian], *Avtomatika i Telemechanika* **10** (2006), 120–174; translation in *Automation and Remote Control* **67** (10) (2006), 1645–1698. The author presents "a survey of the main results of Vladimir Andreevich Yakubovich in optimal control theory and also of the corresponding research carried out by representatives of the school founded by him." (KP) #34.4.178

McCleary, John. Airborne weapons accuracy: Topologists and the applied mathematics panel, *Mathematical Intelligencer* **28** (4) (2006), 17–21. An account of Hassler Whitney's (1907–1989) role during World War II in solving the problem of fire control for air-to-air rockets, a task assigned to Columbia University's Applied Mathematics Group by the Office of Scientific Research and Development. For this article, the author has used material in the US National Archives. (FA) #34.4.179

Millán Gasca, Ana. Organization and mathematics: A look into the prehistory of industrial engineering, in #34.4.177, pp. 21–51. A historical review of the role of mathematicians in the development of industrial engineering. See the review by Pradip Kumar Majumdar in *Zentralblatt MATH* 1117.01013. (SED) #34.4.180

Millán Gasca, Ana. *See* #34.4.177.

Mishchenko, Alexandr S. *See* #34.4.181.

Mishchenko, Evgenii F.; Mishchenko, Alexandr S.; and Zelikin, Mikhail I. Adequacy of mathematical models in control theory, physics, and environmental science, in #34.4.177, pp. 156–188. This paper presents historical examples of the application of mathematics to concrete problems, and the questions of rigor that accompany such an application. See the review by Ülo Lumiste in *Zentralblatt MATH* 1109.01003. (SED) #34.4.181

Neumann, Olaf. Der Goldene Schnitt und seine Iteration. Einiges über Kunst und Zahlentheorie, in #34.4.10, pp. 355–366. #34.4.182

Nicolò, Fernando. *See* #34.4.177.

Odifreddi, Piergiorgio. Kreisel's Church, in #34.4.184, pp. 353–382. Discusses Kreisel's views on Church's Thesis. See the review by Rodney G. Downey in *Mathematical Reviews* 2267174. (SED/KP) #34.4.183

Olszewski, Adam; Woleński, Jan; and Janusz, Robert, eds. *Church's Thesis After 70 Years*, Heusenstamm: Ontos Verlag, 2006, 551 pp. The contents are listed separately (and several historically-oriented ones abstracted separately) as #34.4.139; #34.4.144; #34.4.162; #34.4.183; #34.4.197; and #34.4.198. (KP) #34.4.184

Ortiz, Eduardo L. António A. Monteiro, on the practice of mathematics, in #34.4.28, pp. 561–600. #34.4.185

Patera, Valeria. Alan's apple: Hacking the Turing test, in #34.4.205, pp. 9–41. #34.4.186

Peckhaus, Volker. "Aber vielleicht kommt noch eine Zeit, wo auch meine Arbeiten wieder entdeckt und gelesen werden": Die gescheiterte Karriere des Ernst Zermelo, in #34.4.10, pp. 325–339. #34.4.187

Penrose, Roger. *See* #34.4.202.

Pestre, Dominique. *See* #34.4.152.

Proudfoot, Diane. Robots and rule-following, in #34.4.205, pp. 359–379. #34.4.188

Proudfoot, Diane. *See also* #34.4.150.

Rakus-Andersson, Elisabeth. The Polish brains behind the breaking of the Enigma code before and during the Second World War, in #34.4.205, pp. 419–439. #34.4.189

Rescher, Nicolas. The Berlin school of logical empiricism and its legacy, *Erkenntnis* **64** (3) (2006), 281–304. Traces the development of the Berlin school through three generations and movement from Germany to the United States. See the review by Robert S.D. Thomas in *Mathematical Reviews* 2264672 (**2007h**:01010). (DJM) #34.4.190

Roquette, Peter. *See* #34.4.171.

Rosen, Michael, ed. *Exposition by Emil Artin: A Selection*, Providence, RI: American Mathematical Society, 2006, x+346 pp. This volume gathers a representative collection of Emil Artin's most famous writings, including three of his short books and ten selected papers. See the review by Werner Kleinert in *Zentralblatt MATH* 1108.01017. (LM) #34.4.191

Sale, Tony. Alan Turing at Bletchley Park in World War II, in #34.4.205, pp. 441–462. #34.4.192

Samoĭlenko, A.M. *See* #34.4.203.

Sánchez Ron, José Manuel. Albert Einstein: su vida y su obra [Albert Einstein: his life and works], in #34.4.143, pp. 11–24. This paper discusses both the scientific and social life of Einstein. See the review by V.N. Salii in *Zentralblatt MATH* 1109.01013. (SED) #34.4.193

Sánchez Ron, José M. *See also* #34.4.158.

Schmitt, Peter. *See also* #34.4.138.

Schnelle, Helmut. A note on enjoying strawberries with cream, making mistakes, and other idiotic features, in #34.4.205, pp. 353–358. #34.4.194

Schrödinger, Erwin. *Mein Leben, meine Weltansicht. Die Autobiographie und das philosophische Testament* [*My life, my Worldview. The Autobiography and the Philosophical Testament*], with a foreword by Auguste Dick, München: Deutscher Taschenbuch Verlag, 2006, 182 pp. See the review by Karin Reich in *Zentralblatt MATH* 1107.01009 concerning this autobiography and philosophical testament of Erwin Schrödinger. (LM) #34.4.195

Schwabik, Stefan. *See* #34.4.167.

Schwaninger, Markus. The evolution of organizational cybernetics, *Scientiae Mathematicae Japonicae* **64** (2) (2006), 405–420. From the author's summary: "The purpose of this paper is to give an overview of the origins and further developments of organizational cybernetics, its transdisciplinary nature and its links to different areas of science, i.e., both natural sciences and the humanities." (KP) #34.4.196

Schwarz, Wolfgang. *See* #34.4.10.

Shagrir, Oron. Gödel on Turing on computability, in #34.4.184, pp. 393–419. Attempts to explain Gödel's "puzzling response" to Turing's work, in which he both endorsed Turing's definition of mechanical computability and objected that the definition was based on a flawed assumption. (KP) #34.4.197

Sieg, Wilfried. Step by recursive step: Church's analysis of effective calculability, in #34.4.184, pp. 456–490. (KP) #34.4.198

Siegmund-Schultze, Reinhard; and Zabell, Sandy. Richard von Mises and the problem of two races: A statistical satire in 1934, *Historia Mathematica* **34** (2) (2007), 206–220. An investigation into the political and statistical agendas of the 1934 article, "Problem of two races," written by Richard von Mises (1883–1953). (SED) #34.4.199

Soifer, Alexander. In search of van der Waerden, Leipzig and Amsterdam, 1931–1951. I: Leipzig, *Geombinatorics* **14** (1) (2004), 21–40. The author discusses former biographical articles on van der Waerden, he gives his views on what makes a good biography, and he describes episodes and events in the mathematician's life in the years 1931–1951. See the review by Karl-Heinz Schlote in *Zentralblatt MATH* 1059.01013. (LM) #34.4.200

Soifer, Alexander. In search of van der Waerden, Leipzig and Amsterdam, 1931–1951. II: Amsterdam, 1945, *Geombinatorics* **14** (2) (2004), 72–102. This paper (the second of three parts) presents the author's investigations regarding the biography of B.L. van der Waerden concerning the period when van der Waerden and his family returned to Amsterdam after World War II in June 1945. See the review by Karl-Heinz Schlote in *Zentralblatt MATH* 1110.01011. (LM) #34.4.201

Sreenivasan, Katepalli R. *See* #34.4.155.

Stachel, John, ed. *Einstein's Miraculous Year. Five Papers that Changed the Face of Physics*, Princeton, NJ: Princeton University Press, 2005, lxxiv+198 pp. Centenary edition of Einstein's five groundbreaking 1905 papers: "the two that founded special relativity; a third that challenges the wave theory of light; a fourth on the Brownian motion of small particles suspended in stationary liquids; and, closing the collection, Einstein's doctoral dissertation." With a new introduction by the editor and a foreword by Roger Penrose. (KP) #34.4.202

Strok, V.V.; and Samoĭlenko, A.M., eds. *A Biographical Dictionary of Scientists (1934–2004). Material on the History of the Institute of Mathematics* [in Ukrainian], Kiev: Natsīonal′na Akademīya Nauk Ukraïni, Īnstitut Matematiki, 2004, 124 pp. Contains biographies and bibliographies for more than 200 members of the approximately 70-year-old Institute of Mathematics of the National Academy of Science of Ukraine. (KP) #34.4.203

Suceavă, Bogdan D. *See* #34.4.199.

Swinton, Jonathan. Watching the daisies grow: Turing and Fibonacci phyllotaxis, in #34.4.205, pp. 477–498. #34.4.204

Teuscher, Christof. *Alan Turing: Life and Legacy of a Great Thinker*, Berlin: Springer-Verlag, 2004, xxviii+542 pp. This volume is a collection of papers from the 2002 conference "Turing Day: Computing Science 90 Years from the Birth of Alan Mathison Turing" held at the École Polytechnique Fédérale de Lausanne. Articles concerning the history of mathematics are listed here separately as #34.4.149; #34.4.150; #34.4.157; #34.4.161; #34.4.163; #34.4.170; #34.4.186; #34.4.188; #34.4.189; #34.4.192; #34.4.194; #34.4.204; and #34.4.206. See the review by Herbert J. Bernstein in *Mathematical Reviews* 2106942 (**2007c**:68001). (SED) #34.4.205

Teuscher, Christof. Turing's connectionism, in #34.4.205, pp. 499–529. #34.4.206

Tobies, Renate. Bonn als Promotionsort für Mathematiker/innen 1907/08 bis 1944/45, in #34.4.10, pp. 422–442. #34.4.207

Toft, Bjarne. Claude Berge – sculptor of graph theory, in Bondy, Adrian, et al., eds., *Graph Theory in Paris*, Basel: Birkhäuser, 2007, pp. 1–10. This paper, part of the proceedings of a July 2004 conference in memory of Claude Berge held in Paris, discusses some of Claude Berge's activities and achievements mainly as a graph theorist. (LM) #34.4.208

Tvrdý, Milan. *See* #34.4.167.

Veguillas, Luis Navarro. Cuantos, fotones y moléculas: Un cuarto de siglo de controversias [Quanta, photons and molecules: a quarter-century of controversy], in #34.4.143, pp. 69–92. #34.4.209

Voss, Waltraud. Gerhard Kowalewski als Rektor an der TH Dresden, in #34.4.10, pp. 443–461. #34.4.210

Vrkoc, Ivo. *See* #34.4.167.

Wierzbicki, Andrzej P. The development of systems science: Concepts of knowledge as seen from Western and Eastern perspective, in #34.4.177, pp. 189–220. A historical review of the role of mathematics and technology in systems science. See the review by Ülo Lumiste in *Zentralblatt MATH* 1109.01004. (SED) #34.4.211

Woleński, Jan. *See* #34.4.184.

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Zabell, Sandy. *See* #34.4.199.

Zelikin, Mikhail I. *See* #34.4.181.

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## Reviewers

Index of authors of reviews in *Mathematical Reviews*, *Zentralblatt MATH*, and other publications that are referenced in these abstracts.